

INTERNET DOCUMENT INFORMATION FORM

A . Report Title: Resource Significance Protocol for Environmental Project Planning

B. DATE Report Downloaded From the Internet ⁸5/08/98

Report's Point of Contact: (Name, Organization, Address, Office Symbol, & Ph #): Department of the Army Corps of Engineers
Alexandria, VA 22315-3868

D. Currently Applicable Classification Level: Unclassified

E. Distribution Statement A: Approved for Public Release

F. The foregoing information was compiled and provided by:
DTIC-OCA, Initials: Vgm **Preparation Date:** 5/12/98

The foregoing information should exactly correspond to the Title, Report Number, and the Date on the accompanying report document. If there are mismatches, or other questions, contact the above OCA Representative for resolution.

DTIC QUALITY INSPECTED 4

19980514 122

RESOURCE SIGNIFICANCE PROTOCOL
FOR ENVIRONMENTAL PROJECT PLANNING

by

Apogee Research, Inc.
4350 East-West Highway, Suite 600
Bethesda, MD 20814

for

U.S. Army Corps of Engineers
Water Resources Support Center
Institute for Water Resources
Alexandria, VA 22315-3868

July 1997

IWR Report 97-R-4

PREFACE

The work reported herein was conducted as part of the Evaluation of Environmental Investments Research Program (EEIRP). The EEIRP is sponsored by the Headquarters, U.S. Army Corps of Engineers (HQUSACE). It is jointly assigned to the U.S. Army Engineer Water Resources Support Center (WRSC), Institute for Water Resources (IWR) and the U.S. Army Engineer Waterways Experiment Station (WES), Environmental Laboratory (EL). Mr. William J. Hansen of IWR is the Program Manager and Mr. H. Roger Hamilton is the WES Manager. Program Monitors during this study were Mr. John W. Bellinger and Mr. K. Brad Fowler, HQUSACE. The Field Review Group members that provide overall Program direction and their District or Division affiliation are: Mr. David Carney, New Orleans; Mr. Larry M. Kilgo, Lower Mississippi Valley; Mr. Richard Gorton, Omaha; Mr. Bruce D. Carlson, St. Paul; Mr. Glendon L. Coffee, Mobile; Ms. Susan E. Durden, Savannah; Mr. Scott Miner, San Francisco; Mr. Robert F. Scott, Fort Worth; Mr. Clifford J. Kidd, Baltimore; Mr. Edwin J. Woodruff, North Pacific; and Dr. Michael Passmore, WES (formerly Walla Walla).

This report was prepared by Apogee Research, Inc., under Task Order 0001, Contract No. DACW72-95-D-0001. Ms. Amy Doll was the principal investigator, under the general supervision of Kenneth I. Rubin, Ph.D. Mr. Gerald D. Seinwill contributed to the research and analysis for this report. This report was prepared as part of the Determining and Describing Environmental Significance Work Unit, within EEIRP. Mr. Darrell G. Nolton of the Technical Analysis and Research Division (TARD) at IWR manages this work unit. Previous IWR reports that contributed to this report include *Review and Evaluation of Programs for Determining Significance and Prioritization of Environmental Resources*, IWR Report #94-R-7 (September 1994); *Resource Significance: A New Perspective for Environmental Project Planning*, IWR Report #95-R-10 (June 1995); and *Significance in Environmental Project Planning: Resource Document*, IWR Report #96-R-7 (February 1996), all prepared by Ms. Amy Doll of Apogee Research, Inc.

Significance in Environmental Project Planning: Resource Document, IWR Report #96-R-7 (February 1996), was originally published as a separate document to assist Corps planners in identifying and describing information on resource significance. The *Resource Document* was developed as a companion document to the significance protocol. Copies of the *Resource Document* are no longer available from IWR. Consequently, rather than reprint it as a separate document, it is reprinted here, as an addendum for purposes of saving printing costs and making the significance protocol more complete.

The report was prepared under the general supervision of Mr. Michael R. Krouse, Chief, TARD, IWR; and Mr. Kyle E. Schilling, Director, IWR. At the time of preparation of this report, Mr. Kyle E. Schilling was Acting Director, WRSC and Dr. Robert W. Whalin was Director of WES. Commander of WES was COL Bruce K. Howard, EN.

TABLE OF CONTENTS

1. INTRODUCTION	1
Background	1
Purpose and Scope	2
Intended Audience	3
Application of Protocol to Planning Studies	3
Organization of Report	4
2. SCOPING PHASE	6
Step 1--Internal Scoping	6
Step 2--External Consultations and Scoping	16
3. ANALYTICAL PHASE	31
Step 3--Review Information from Scoping Phase	31
Step 4--Analyze Sources of Significance	31
Step 5--Document Sources of Recognition	37
Step 6--Determine Relative Importance Rankings	42
Step 7--Determine Levels of Significance	43
Step 8--Determine Signifiscores	51
4. EVALUATION PHASE	59
Step 9--Prioritize Resources and Evaluate Policy Considerations	59
5. COMMUNICATION PHASE	64
Step 10--Develop Significance Statements	64
 ADDENDUM: <i>Significance in Environmental Project Planning: Resource Document, IWR Report #96-R-7 (February 1996)</i>	

LIST OF EXHIBITS

Exhibit 2-1. Example Worksheet for Scoping Phase of Significance Protocol	7
Exhibit 2-2. Questions to Assist in Identifying Potentially Significant Resources in Internal Scoping Meetings	8
Exhibit 2-3. Illustrative List of Species Types	10
Exhibit 2-4. Examples of Sources of Institutional Recognition	17
Exhibit 2-5. Examples of Sources of Public Recognition	22
Exhibit 2-6. Examples of Criteria or Concepts Relevant to Technical Recognition	24
Exhibit 2-7. Illustrative List of Ecological Attributes	25
 Exhibit 3-1. Questions to Assist in Identifying Potentially Significant Wetlands	 34
Exhibit 3-2. Questions to Assist in Identifying Potentially Significant Rivers	35
Exhibit 3-3. Questions to Assist in Identifying Potentially Significant Estuaries or Marine Areas	36
 Exhibit 4-1. References to Policy Documents for Corps Environmental Program	 61
 Exhibit 5-1. Checklist to Evaluate Effectiveness of Significance Statements	 67

LIST OF EXAMPLE WORKSHEETS

Worksheet 2-1. Hypothetical Example of Worksheet Documentation after Step 1 of the Scoping Phase	13
Worksheet 2-2. Hypothetical Example of Worksheet Documentation after Step 2 of the Scoping Phase	27
Worksheet 3-1. Hypothetical Example of Worksheet Documentation after Step 5 of the Analytical Phase	38
Worksheet 3-2. Hypothetical Example of Worksheet Documentation after Steps 6 & 7 of the Analytical Phase	45
Worksheet 3-3. Hypothetical Example of Worksheet Documentation after Step 8 of the Analytical Phase	53

1. INTRODUCTION

Environmental restoration and protection is now a "priority" output, similar to flood control and navigation, in the Corps of Engineers (COE) budgeting process for the Civil Works water resources development program. However, in contrast to more traditional project outputs, many of the outputs of environmental restoration projects cannot be measured in monetary terms. Without the option of quantifying environmental outputs in monetary terms, other criteria must be considered for evaluating and justifying environmental restoration projects in the COE's planning and budgeting processes. One potential criterion is the "significance" of the environmental resource(s) associated with such projects. For this purpose, resource significance can be described in terms of **institutional**, **public**, and **technical** significance (see Chapter 2), as defined in the Water Resources Council's *Principles and Guidelines*.¹

Background

The protocol for determining and describing resource significance presented in this report has evolved from several previous efforts. These began under the COE's Planning Methodologies Research Program and have continued under the Evaluation of Environmental Investments Research Program, under which the work reported herein was conducted. The protocol was designed as an easy-to-use guide to optimize its use by planners. Several reports document these efforts and provide additional reference material and illustrative examples that can assist planners in the application of this protocol. These include:

- 1) *Review and Evaluation of Programs for Determining Significance and Prioritization of Environmental Resources*. IWR Report #94-R-7 (September 1994): This report provided a review of a sample of 95 programs used to establish resource priorities and allocate resources based on those priorities. Included are reviews of 42 Federal, two regional, 42 state, and six nonprofit organization programs as well as three programs that addressed historical resources.
- 2) *Resource Significance: A New Perspective for Environmental Project Planning*. IWR Report #95-R-10 (June 1995): The purpose of this report was to provide interim information on the use of significance in environmental project planning and evaluation. It provided a summary of the previous review and introduced the concept of a protocol for including significance in environmental project planning.

¹Water Resources Council, *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies*, (March 10, 1983).

- 3) *Significance in Environmental Project Planning: Resource Document*. IWR Report #96-R-7 (February 1996): This report provides information and guidance on resources available to support use of this protocol. The report includes several illustrative examples of how significance statements can be documented and communicated to project reviewers and decision makers. (see Addendum to this report for a reprinted copy of the *Resource Document*)

Purpose and Scope

The purpose of this report is to provide a short, easy-to-use guide, or protocol, for identifying and describing resource significance in environmental project planning. The purposes of the protocol are to:

- Establish the Federal interest in a proposed restoration project and a level of priority for the project at the national, regional, state, and local levels;
- Evaluate individual project plans;
- Communicate information to decision makers to support project justification; and
- Communicate information to decision makers to assist in allocating resources among different projects.

The protocol provides an iterative procedure for identifying and describing resource significance in environmental plan formulation and evaluation. Four phases of the protocol are identified—scoping, analyzing, evaluating, and communicating. Each phase consists of several steps, with a total of 10 steps to complete the four phases of the protocol. One or more iterations of these four phases will guide a planning team through the process of identifying and describing resource significance.

The purpose of each phase in the protocol is summarized below:

- 1) **Scoping Phase.** Identify and document the range of potentially significant environmental resources related to the study area for a proposed restoration project.
- 2) **Analytical Phase.** Determine and document specific sources of priority recognition; collect and analyze information to describe the institutional, public, and technical significance of particular environmental resources; and, *if appropriate*, examine the significance of each resource through analyzing relative importance rankings, levels of significance, and signifiscores. The signifiscores (see Step 8) can be used by a planning team as a method to

organize and document decisions to determine those resources with the greatest relative significance.

- 3) **Evaluation Phase.** Evaluate the significance determinations against Corps policy, planning, and budgetary guidance (e.g., the need to establish a Federal interest) to further prioritize among significant resources.
- 4) **Communication Phase.** Develop narrative statements describing the determinations of significance, which will be included in planning reports.

When applying the significance protocol for projects associated with complex ecosystems or large study areas, planners may find that many interrelationships exist among the first three phases. In such cases, the planning team may have to complete several iterations of the scoping, analytical, and evaluation phases prior to completing the communication phase. Each iteration typically involves increasing levels of detail consistent with the needs of the planning effort.

Intended Audience

The significance protocol presented in this report was developed primarily for use by Corps planners in formulating environmental restoration plans. Many experienced planners, especially those with extensive experience in environmental project planning, may find this report most useful as a refresher and to provide assistance in communicating resource significance through narrative significance statements in planning reports.

Application of Protocol to Planning Studies

The protocol phases can be followed in whole or in part for identifying and describing resource significance, depending on the study they are being used for--reconnaissance studies or feasibility studies. Application of the significance protocol for each type of study is described below:



Reconnaissance Studies. The significance protocol for reconnaissance studies involves identifying resources that are potentially significant and preparing a list or an inventory of those resources. Planners should focus primarily on the scoping and analytical phases and conduct an evaluation of resource significance to determine whether a Federal interest exists for a proposed restoration project. Recognition of significance from a national or regional perspective is usually necessary to establish the Federal interest in such projects. For a reconnaissance study, the communication phase involves developing a narrative significance statement that describes whether a Federal interest exists as a rationale for proceeding to a feasibility study.



Feasibility Studies. The significance protocol for feasibility studies involves developing a more detailed list or inventory of potentially significant resources that were identified in the scoping phase for the reconnaissance study. Based on this inventory, planners should conduct a more detailed analysis to identify individual sources of recognition of the institutional, public, and technical significance of these resources. The analytical phase involves examining the significance of each resource through analyzing, *if appropriate*, relative importance rankings, levels of significance (e.g., national/international, regional, state, and local), and signifiscores (see Step 8). The evaluation phase involves determining the most significant resources by further prioritizing resource significance and evaluating the significance determinations against Corps policy, planning, and budgetary guidance. For a feasibility study, the communication phase involves developing narrative significance statements that describe the determinations of significance. By focusing primarily on those resources that are significant from a national or regional perspective, the narrative significance statements communicate important information to decision makers to evaluate individual project plans, support project justification, and assist in allocating resources among different projects.

Organization of Report

This chapter discusses the purpose and scope of this report. It also summarizes the application of the significance protocol to planning studies.

Chapter 2 presents the steps in the scoping phase. It introduces the significance protocol worksheet and provides examples of worksheet documentation. The steps in the scoping phase are:

- Step 1--Internal Scoping, and
- Step 2--External Consultations and Scoping to Identify Bases of Significance.

Chapter 3 presents the steps in the analytical phase. It provides additional examples of worksheet documentation. The steps in the analytical phase are:

- Step 3--Review Information from Scoping Phase,
- Step 4--Analyze Sources of Significance,
- Step 5--Document Sources of Recognition,
- Step 6--Determine Relative Importance Rankings,
- Step 7--Determine Levels of Significance, and
- Step 8--Determine Signifiscores.

Chapter 4 presents the evaluation phase. The step of the significance protocol within the evaluation phase is:

Step 9--Prioritize Resources and Evaluate Policy Considerations.

Chapter 5 presents the communication phase, which includes the final step of the protocol:

Step 10--Develop Significance Statements.

2. SCOPING PHASE

The purpose of the scoping phase is to identify and document the range of potentially significant environmental resources related to the study area for a proposed restoration project. Significant environmental resources are defined as those that are institutionally, publicly, or technically recognized as important.

Additional guidance on identifying and describing the significance of an environmental resource through institutional, public, or technical recognition of the importance of an environmental resource can be found in *Significance in Environmental Project Planning: Resource Document*, IWR Report 96-R-7 (February 1996); also provided as the Addendum to this report. All members of the interdisciplinary planning team involved in the restoration study should familiarize themselves with *Significance in Environmental Project Planning: Resource Document* if they have not previously used it.

The three bases for significance are defined below:

- ***Institutional.*** Significance based on institutional recognition means that the importance of an environmental resource is acknowledged in the laws, adopted plans, and other policy statements of public agencies, tribes, or private groups.
- ***Public.*** Significance based on public recognition means that some segment of the general public recognizes the importance of an environmental resource.
- ***Technical.*** Significance based on technical recognition means that the importance of an environmental resource is based on scientific or technical knowledge or judgement of critical resource characteristics.

Step 1--Internal Scoping



Conduct internal scoping meetings with the planning team and other District staff, as appropriate. These meetings are held to identify potentially significant environmental resources, identify readily available information on those resources and their possible sources of recognition, and determine needs for external consultations and scoping meetings. Potentially significant environmental resources are defined as those resources that are:

- Directly associated with the ecosystem or watershed related to the study area for a proposed restoration project (i.e., those potentially significant resources that are not directly associated with the study area are screened out), and

- Likely to be determined significant based on institutional, public, or technical recognition (i.e., those resources that with reasonable certainty are likely to have sources of institutional, public, or technical recognition as a basis for significance).

Exhibit 2-1 presents an example worksheet for documentation in the scoping phase. The interdisciplinary planning team may adapt the example worksheet to the needs of a specific study. A hypothetical example of worksheet documentation (i.e., definition of columns) and additional guidance on completing the worksheet is provided below.

Exhibit 2-2 provides examples of questions to assist in identifying potentially significant environmental resources during internal scoping meetings. The planning team can use these questions to guide its initial resource identification and inventory efforts.

Exhibit 2-1. Example Worksheet for Scoping Phase of Significance Protocol

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition

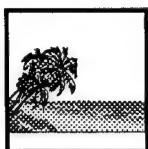
Exhibit 2-2. Questions to Assist in Identifying Potentially Significant Resources in Internal Scoping Meetings

- What is (are) the environmental resource(s) related to the restoration problem or opportunity?
- Why is it important to protect or restore that resource?
- What is special about the resource that makes it not only important to us individually but also to us as a society?
- Is the resource considered threatened or endangered?
- Is the resource listed or proposed for listing on a protected list (Federal or state)?
- Has the resource received any national or international designations (e.g., Wetland of International Importance)?
- Does the resource contribute to the enhancement of a larger system (e.g., watershed, ecosystem, or landscape) or other species?
- Are there existing laws or regulations (local, state, regional, or Federal) that serve to protect a particular type of habitat or species?
- How does the local government view the resource?
- How does the state government view the resource?
- How do various interest groups (e.g., environmental organizations, recreation user groups, and fish and wildlife groups) view the resource?
- Have state or local governments spent money in the past to protect or restore the resource?
- Have any interest groups spent money (directly or in cooperation with government agencies through contributions or cost sharing) to protect or restore the resource?
- Do neighboring states or local governments have similar priorities with respect to the resource?
- Is there a nationally recognized effort to protect or restore the resource (e.g., the Upper Mississippi River System Environmental Management Program)?
- Are there existing or planned efforts among national nonprofit organizations (e.g., The Nature Conservancy and the National Audubon Society) to protect or restore the resource or similar resources?

Step 1--Internal Scoping (continued)

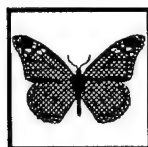
Steps 1a-1c are outlined below to guide the planning team in obtaining information for the first column (resource) and second column (location) of the example worksheet for the scoping phase presented in Exhibit 2-1.

Step 1a-Identify Resources



Identify each potentially significant environmental resource associated with the study area for a proposed restoration project. Resources will include species (see Exhibit 2-3 for an illustrative list of species types), systems (e.g., plant or animal communities, or ecosystems), and relevant habitat types--wetlands, rivers, lakes, and estuaries or marine areas.

Step 1b-Name Resources



Further define each potentially significant resource using its "common name" or the name by which the resource is generally known (e.g., a river system for a watershed related to a proposed project might be broken out as the Devin River, Little Deep Fork Creek, and Hansen Run). To address potentially significant species, the planning team could use the list of species types in Exhibit 2-3 as a starting point to identify individual species and produce a list of all potentially significant species associated with the study area for a proposed project.

Step 1c-Identify Location of Named Resources



Identify the geographical location of each potentially significant resource associated with the study area. Location is defined as the place within the ecosystem or watershed related to the study area where the resource occurs. Location can be described in terms of an identifiable geographic location (e.g., between river miles 10 and 15) or as specifically as possible without revealing the exact location where certain sensitive resources (e.g., endangered species habitats) could be jeopardized by distribution of such information.

Exhibit 2-3. Illustrative List of Species Types

ANIMALS

VERTEBRATES

- Mammals (resident and migratory)
- Birds (resident and migratory)
- Reptiles
- Amphibians
- Fishes (resident and anadromous)

INVERTEBRATES

- Clams and mussels
- Snails
- Insects
- Arachnids (e.g., spiders, scorpions)
- Crustaceans (e.g., shrimps, crayfishes)
- Worms
- Sponges

PLANTS

- Flowering plants (e.g., trees, shrubs, perennials, emergent and submerged aquatic plants)
- Conifers
- Ferns and fern allies
- Lichens

SPECIAL CONSIDERATION

Species that generally are considered significant:

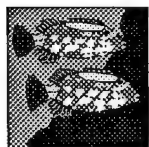
- Federally listed endangered or threatened species
- Federally proposed or candidate species
- State listed endangered or threatened species

Species that generally are not considered significant:

- Exotic species (i.e., species introduced, deliberately or accidentally, into areas where they are not native)

The culmination of Step 1 will produce a draft worksheet (or other applicable document) highlighting those resources that should be further analyzed through external consultations and/or scoping meetings. See Worksheet 2-1 for a hypothetical example of worksheet documentation after completion of Step 1 of the scoping phase.

Devin River Restoration Project--Hypothetical Example



Worksheet 2-1 and subsequent example worksheets presented in this report are based on a hypothetical restoration project--the Devin River Restoration Project. This hypothetical example involves a planning study for restoration of a river segment that was part of a Corps channelization project 20 years ago. The channelization project was constructed between river miles 10 and 20 of the Devin River. Because the Corps channelization project focused on maximizing potential flood damage reduction benefits, it had unintended adverse effects on fish and wildlife habitat.

Background

The channelized portion of the Devin River is an integral part of a larger river-riparian ecosystem encompassed by the Devin River watershed. Upon completion of the channelization project 20 years ago, the river segment between river miles 10 and 40 experienced a decline in ecosystem integrity (or ecosystem health) as demonstrated by a decline in both in-stream and riparian species and habitat. Historical observation has established that prior to channelization this river segment supported important ecological functions, including providing a link to spawning habitat for anadromous fish in the upper tributaries of the Devin River (i.e., Little Deep Fork Creek and Hansen Run).

The proposed Devin River Restoration Project is located on Devin River approximately midway between Redrock City and the Town of Alvord. The study area for the proposed project consists of the river-riparian ecosystem within the Devin River watershed between Redrock City and the Town of Alvord, below the two tributaries of Devin River (i.e., Little Deep Fork Creek and Hansen Run). The goal of the Devin River Restoration Project is to restore the degraded riverine ecosystem to a less degraded, more natural condition by restoring natural stream flows and in-stream and riparian habitat; while ensuring that flood control objectives are met. To accomplish this goal, an interdisciplinary planning team was assembled to conduct a planning study, including determining and describing the significance of environmental resources associated with the study area. The interdisciplinary planning team consists of a biologist, a landscape architect, a hydrologist, a civil engineer, a sociologist, and an economist.

To conduct Step 1 of the significance protocol (internal scoping), the interdisciplinary planning team initiated a process consisting of several meetings at the Corps District office. These meetings were iterative in nature and in most cases involved all the members of the interdisciplinary planning team.

The interdisciplinary planning team identified each potentially significant environmental resource associated with the study area. For this step of the protocol, the biologist and landscape architect brought the greatest specific expertise to the task at hand (i.e., resource identification), although all members of the interdisciplinary planning team provided input to the internal scoping process.

After potentially significant resources were identified, they were recorded in the worksheet, under the column labeled resource, using their "common names" or the names by which they are generally known. Worksheet 2-1 depicts the potentially significant resources identified by the interdisciplinary planning team in the study area for the proposed Devin River Restoration Project.

The interdisciplinary planning team also identified the location of each potentially significant resource associated with the study area. This information was recorded in Worksheet 2-1 under the column labeled location (e.g., between river miles 10 and 25 of Devin River).

Worksheet 2-1. Hypothetical Example of Worksheet Documentation after Step 1 of the Scoping Phase

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition
Greenbelled Anadromous Fish	Migrates up Devin River during spring spawning season to the upper tributaries (Little Deep Fork Creek and Hansen Run) for spawning			
Red Trout	Between river miles 10 and 40 of Devin River			
Hansen Shiner	Occasionally found between river miles 20 and 40 of Devin River, more frequent between river miles 25 and 40 although not abundant, more abundant in Hansen Run (an upper tributary of Devin River)			
Bald Eagle	Bald Eagle nest near west bank around river mile 20 of Devin River			
Peregrine Falcon	Peregrine Falcon occasionally sighted foraging in Devin River between river miles 16-20			

Worksheet 2-1. Hypothetical Example of Worksheet Documentation after Step 1 of the Scoping Phase (continued)

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition
Osprey	Three osprey nests exist in the Devin River watershed, one near river mile 16, another near river mile 28, and another near river mile 36			
Waterthrush	Riparian habitat of Devin River watershed			
Wandering Warbler	Neotropical migrant sighted annually in riparian habitat of Devin River watershed			
Northern Waterfowl	Between river miles 10 and 40 of Devin River			
Wood Deer	Devin River watershed			
Speckled Frog	A few, isolated locations between river miles 10 and 40 of Devin River			
Blue Mussel	A few, isolated locations between river miles 20 and 40 of Devin River; no known specimens collected from river miles 10-20 for last 20 years			

Worksheet 2-1. Hypothetical Example of Worksheet Documentation after Step 1 of the Scoping Phase (continued)

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition
Submerged Aquatic Vegetation Beds (Duck Grass and Riverweed)	Various locations; more prominent between river miles 20 and 40 of Devin River (see Map X)			
Bank Tree	Riparian areas of Devin River watershed			
Bank Shrub	Riparian areas of Devin River watershed			

Step 2--External Consultations and Scoping



Conduct external consultations and/or scoping meetings to collect additional information on potentially significant resources identified through internal scoping and to identify other potentially significant environmental resources and collect information on those resources. Suggested external consultations are provided below for each type of significance.

Use existing information along with information collected through external consultations and scoping to identify the likely bases of significance for each potentially significant environmental resource. The bases for the significance of the resource is determined by sources of institutional, public, or technical recognition. Because the significance of many environmental resources may be recognized on more than one basis, the scoping process should take a broad focus in identifying all likely bases for the significance of a resource.

Steps 2a-2c are outlined below to guide the planning team in identifying likely bases for significance through external consultations and scoping. The planning team should include existing information along with information collected through external consultations and scoping on likely bases of significance under the third (institutional), fourth (public), and fifth (technical) columns of the example worksheet for the scoping phase (see Exhibit 2-1 and Worksheet 2-1).

Step 2a-Institutional

For each potentially significant resource in the study area likely to have sources of institutional recognition, consult with federal, regional, state, and local resource agencies and organizations, and document findings.



Add information on likely bases of institutional significance to the third column of the significance protocol worksheet. See Worksheet 2-2 for examples for Step 2a.

For institutional significance, consultation with Federal resource agencies (e.g., U.S. Fish and Wildlife Service and National Marine Fisheries Service) can assist in identifying important resources in the study area and potential sources of institutional recognition of the significance of those resources. Such sources can include laws, regulations, or treaties, as well as adopted plans of other agencies that address the importance of resources in the study area.

Similarly, regional and state agencies (e.g., Natural Heritage Programs) can be consulted to identify important resources and potential sources of institutional recognition at the regional and state levels. Nonprofit organizations working independently or in partnership with government agencies may also be useful sources of information on potential sources of institutional recognition.

Exhibit 2-4 provides examples of existing programs and information that can assist in identifying institutionally significant environmental resources.

Exhibit 2-4. Examples of Sources of Institutional Recognition (continued)

NATIONAL/INTERNATIONAL

PUBLIC AGENCIES

Species

Endangered Species Act of 1973, as amended
GAP Analysis Program
U.S. Fish and Wildlife Service, Office of Migratory Bird Management--Species Lists
 High Priority Waterfowl Species List
 Priority Waterfowl Species List
 Migratory Nongame Birds of Management Concern in the United States List
 Migratory Nongame Birds of National Concern in the United States List
 Special Attention Nongame Migratory Bird Species List
Anadromous Fish Conservation Act of 1965
Bald Eagle Protection Act of 1940
Fish and Wildlife Conservation Act of 1956
Fish and Wildlife Coordination Act of 1958
Marine Mammal Protection Act of 1972
Migratory Bird Conservation Act of 1929, and associated treaties
Migratory Bird Treaty Act of 1918
Sikes Act of 1974, as amended
Water Resources Development Act of 1986, Section 906(e)
U.S. Fish and Wildlife Service, Concept Plans for Waterfowl Habitat Preservation

Wetlands

North American Waterfowl Management Plan
 Waterfowl Habitat Areas of Major Concern
 Priority Waterfowl Habitat Areas
 Habitat Joint Ventures
National Wetlands Priority Conservation Plan
Wetlands of International Importance
Coastal Wetlands Planning, Protection, and Restoration Act of 1990 (Section 305), National Coastal
Wetlands Conservation Grant Program
Executive Order No. 11990 of May 1977 (Protection of Wetlands)
Food Security Act of 1985 (Swampbuster provision), amended by the Food, Agriculture, Conservation and
Trade Act of 1990
Wetlands Reserve Program
North American Wetlands Conservation Act of 1989, North American Wetlands Conservation Act Grant
Program
Water Resources Development Act of 1986, Section 906(d)
Water Resources Development Act of 1990, Section 307(a)

Rivers

Wild and Scenic Rivers Act of 1968--Nationwide Rivers Inventory
Wild and Scenic Rivers Act of 1968--National Wild and Scenic Rivers System
Executive Order No. 11988 of May 1977 (Floodplain Management)

Exhibit 2-4. Examples of Sources of Institutional Recognition (continued)

NATIONAL/INTERNATIONAL (continued)

Lakes

Clean Water Act (Section 314)--Clean Lakes Program

Estuaries and Marine Areas

National Estuary Program
National Marine Sanctuary Program
National Estuarine Research Reserve System

Other Relevant Programs

National Wildlife Refuge System
Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990
Coastal Zone Management Act of 1972, as amended
Estuary Protection Act of 1968
National Ocean Pollution Planning Act of 1978
Biosphere Reserves
Federal Land Policy and Management Act of 1976 (Section 202)--Areas of Critical Environmental Concern
Historic Sites Act of 1935--National Natural Landmarks Program, National Registry of Natural Landmarks
National Park Service Organic Act of 1916

PRIVATE/NONPROFIT ORGANIZATIONS

The Nature Conservancy
Global Element Ranks
State Element Ranks
Biodiversity Significance Rating
The Nature Conservancy Preserves
Last Great Places
American Fisheries Society, Endangered Species Committee, "Fishes of North America--Endangered, Threatened, or of Special Concern" List
National Audubon Society Blue List of Species
National Audubon Society Sanctuary Program
Western Hemisphere Shorebird Reserve Network

REGIONAL

PUBLIC AGENCIES

Wetlands

Coastal Wetlands Planning, Protection, and Restoration Act of 1990--Annual Coastal Wetlands Restoration Plan and Priority Project List
Emergency Wetlands Resources Act of 1986--Service Regional Wetland Concept Plans

Exhibit 2-4. Examples of Sources of Institutional Recognition (continued)

REGIONAL (continued)

Rivers

Northwest Power Act of 1980--Protected Areas Program (Pacific Northwest Rivers Study/Hydropower Assessment Study)
Water Resources Development Act of 1986 (Section 1103), as amended--Upper Mississippi River System Environmental Management Program

Lakes

1972 Great Lakes Water Quality Agreement Between the U.S. and Canada, Great Lakes Critical Programs Act of 1990--Great Lakes Program

Estuaries and Marine Areas

Coastal America Partnership (Regional Implementation Teams)
Chesapeake Bay Program
Gulf of Mexico Program

PRIVATE/NONPROFIT ORGANIZATIONS

American Rivers--Outstanding Rivers List

STATE

PUBLIC AGENCIES

Species and Habitat

State Natural Heritage Programs
State Nature Preserves Programs
State Endangered Species Programs
State Critical Area Programs

Wetlands

State Wetlands Priority Plans
State Wetlands Protection Programs

Rivers

State Wild and Scenic Rivers Programs
Other State River Programs

Exhibit 2-4. Examples of Sources of Institutional Recognition (continued)

STATE (continued)

Lakes

State Lake Programs

Estuaries and Marine Areas

State Coastal Zone Management Programs

PRIVATE/NONPROFIT ORGANIZATIONS

State Chapters of The Nature Conservancy
State Chapters of Ducks Unlimited--MARSH Program

LOCAL

PUBLIC AGENCIES

Zoning Ordinances
Wetland Ordinances/Regulations
Shoreline Ordinances/Regulations
Critical Area Planning Criteria
Master Plans
Habitat Conservation Plans

PRIVATE/NONPROFIT ORGANIZATIONS

Land Trusts

Step 2--External Consultations and Scoping (continued)

Step 2b-Public

For each potentially significant resource in the study area likely to have sources of public recognition, review existing information relevant to public recognition and, where appropriate, conduct external scoping meetings, and document findings.



Add information on likely bases of public significance to the fourth column of the significance protocol worksheet. See Worksheet 2-2 for examples for Step 2b.

Public and agency records (e.g., newspaper articles, letters written to the Corps) and scoping meetings with the general public as well as nonprofit organizations with an interest in the resource can help Corps planners identify sources of public recognition of resource significance.

Exhibit 2-5 provides examples of forms of public recognition and means of identifying publicly significant environmental resources.

Additionally, Corps planners can integrate public participation in this activity with activities conducted to meet the scoping requirements of the NEPA regulations (40 CFR 1501.2, 1501.7, and 1507.2(e)) to identify potentially significant resources and to avoid duplication of public involvement efforts.

Exhibit 2-5. Examples of Sources of Public Recognition

FORMS OF PUBLIC RECOGNITION

Organized Groups (e.g., environmental organizations, recreation user groups)

Informal Groups (e.g., local community or neighborhood groups, student groups)

Individual (e.g., volunteer labor, correspondence)

Customs and Traditions (e.g., annual festivals, tribal ceremonies)

MEANS OF IDENTIFYING PUBLIC RECOGNITION

Three primary means of identifying activities reflecting public recognition exist:

- 1) **Self-identification** occurs where organizations or individuals contact the Corps or the planning team to describe their interest in or concern for a resource and their activities related to the resource;
- 2) **Third-party identification** occurs where individuals or agencies and organizations inform the Corps or the planning team of other individuals or organizations' recognition of a resource either voluntarily or upon request from the Corps for such information; and
- 3) **Staff identification** occurs where Corps staff identify public recognition by using a wide range of techniques including intuitive/experiential information; existing lists of groups and individuals (e.g., grant recipients); historical analysis; review of relevant directories, journals, newsletters, and other publications; and direct contact and interviewing potentially interested parties.

TYPES OF INFORMATION THAT MAY BE RELEVANT TO PUBLIC SIGNIFICANCE

- Completed/planned project lists;
- Activity lists/descriptions/summaries;
- Membership lists;
- Mission statements;
- Organizational publications;
- Letters written to the Corps;
- Pictures and graphics; and
- Second-source articles/citations about a group and its activities.

Step 2--External Consultations and Scoping (continued)

Step 2c-Technical

For each potentially significant resource in the study area likely to have sources of technical recognition, consult with public and private resource agencies and organizations and scientific experts, review relevant sources identified in the published and unpublished literature, and document findings.



Add information on likely bases of technical significance to the fifth column of the significance protocol worksheet. See Worksheet 2-2 for examples for Step 2c.

A wide range of sources is available for identification of technically significant environmental resources related to the study area for a proposed restoration project. Consultation with Federal and state resource agencies, nonprofit conservation organizations, and scientific or technical experts at universities or colleges can help identify important resources and the scientific and technical criteria or concepts that support recognition of their technical significance.

Exhibit 2-6 provides examples of scientific and technical criteria or concepts relevant to technical recognition.

To assist in applying the scientific and technical criteria or concepts that support recognition of a resource's technical significance, the interdisciplinary planning team may decide to characterize the ecological attributes of each potentially significant resource associated with the study area. The ecological attributes of a resource are those structural and functional characteristics that relate to sustaining the ecosystem or watershed associated with the study area. Exhibit 2-7 presents an illustrative list of potential ecological attributes.

Exhibit 2-6. Examples of Criteria or Concepts Relevant to Technical Recognition

CRITERIA OR CONCEPTS RELEVANT TO TECHNICAL RECOGNITION

- **Scarcity.** Scarcity is a measure of a resource's relative abundance within a specified geographic range; ranging from "rare or uncommon" to "widespread or abundant." Additionally, "rare" can indicate either few in number or found in few places or both. The scarcity or uniqueness of a resource may vary from an international, national, regional, state, or local perspective.
- **Representativeness.** Representativeness is a measure of an environmental resource's ability to exemplify the natural habitat or ecosystems of a specified geographic range.
- **Status and Trends.** The concept of status and trends for an environmental resource involves evaluating the occurrence and extent of the resource over time, how it has changed, and why. Documentation of the status of a resource includes descriptions of the physical attributes, the extent of degradation, and human alterations of the resource. The trends associated with a resource's degradation should indicate whether the resource is declining, recovering, or maintaining a steady status. In addition, trends should describe how quickly the status of a resource is changing.
- **Landscape Considerations/Connectivity.** Connectivity is a measure of the potential for movement and dispersal of species throughout a given area or ecosystem. Connectivity is essentially the opposite of fragmentation, and it must be considered in the context of an entire landscape or watershed. The variation and quality of links between habitats in a landscape or watershed determine the level of connectivity.
- **Critical Habitat.** Critical habitat is habitat that is essential for the conservation, survival, or recovery of one or more species. Critical habitat designated under Federal or state law also provides institutional recognition of significance.
- **Biodiversity.** Biodiversity, most simply defined, is a measure of the variety of distinct species and the genetic variability within them. A more complete definition also encompasses the variety and interaction of habitat types and ecosystem processes extending over a given region. Thus, biodiversity can be measured at the individual level (genetic variation), the population level (species variation), and the community level (variation of biological communities and interaction of ecosystem functions).

THREE MAJOR SOURCES FOR INFORMATION ON TECHNICAL RECOGNITION

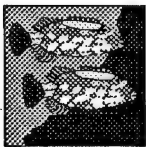
Published literature
Unpublished literature and local and scientific experts
Fieldwork

Exhibit 2-7. Illustrative List of Ecological Attributes

- Provides breeding, nesting, or feeding habitat for migratory or resident waterfowl, other birds, mammals, or reptiles
- Provides spawning or nursery areas for fish or shellfish
- Provides shelter or protection from predators
- Role in native food web support to maintain species integrity, productivity, and stability for native plant and animal populations
- Role in maintaining trophic structure of ecosystem
- Relationship to hydrologic functions and ecosystem morphology (e.g., streambank stability, ripple-to-pool sequences)
- Role in oxygen production or maintenance of dissolved oxygen concentrations
- Role in nutrient cycling

The scoping phase produces a worksheet along with any supporting documentation collected by the interdisciplinary planning team. The worksheet outlines those resources that will be analyzed in the analytical phase. See Worksheet 2-2 for a hypothetical example of worksheet documentation after completion of Step 2 of the scoping phase.

Devin River Restoration Project--Hypothetical Example



To complete Step 2 of the protocol (external consultations and scoping), the interdisciplinary planning team conducted external consultations and scoping meetings, collected additional information on potentially significant resources identified through internal scoping, and identified other potentially significant environmental resources and collected information on those resources. The interdisciplinary planning team also identified existing information regarding likely sources of

institutional, public, and technical recognition for each potentially significant environmental resource associated with the study area.

In several initial meetings, the interdisciplinary planning team met with the U.S. Fish and Wildlife Service (USFWS) and the State Wildlife Agency regarding the migratory route for, and population declines of, the Greenbellied Anadromous Fish. Information from these meetings led the interdisciplinary planning team to identify the Anadromous Fish Conservation Act of 1965 as a source of institutional recognition. Furthermore, discussions with USFWS and state personnel established that because the Greenbellied Anadromous Fish population has been declining since the channelization project, information from agency experts about this declining trend was identified as a source of technical recognition. Finally, as required by the Endangered Species Act of 1973, the interdisciplinary planning team consulted with the USFWS concerning the Federally listed species associated with the study area (i.e., Bald Eagle and Peregrine Falcon). This consultation led the planning team to include the Endangered Species Act of 1973 as a source of institutional recognition. Other meetings were held with the State Natural Heritage Program and State University scientists to identify and obtain information on important resources associated with the study area.

After the initial meetings and consultations, the interdisciplinary planning team sent out notices to potential stakeholders and held an interagency scoping meeting to inquire about other potentially significant environmental resources and their locations. Additionally, the interdisciplinary planning team held a public meeting to solicit input from the public regarding potentially significant environmental resources associated with the study area.

New information obtained from these meetings for external consultations and scoping was added to the information already compiled by the interdisciplinary planning team. The planning team began recording information collected on likely bases of significance under the third (institutional), fourth (public), and fifth (technical) columns of Worksheet 2-2.

Worksheet 2-2. Hypothetical Example of Worksheet Documentation after Step 2 of the Scoping Phase

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition
Greenbelly Anadromous Fish	Migrates up Devin River during spring spawning season to the upper tributaries (Little Deep Fork Creek and Hansen Run) for spawning	Federal Anadromous Fish Conservation Act of 1965	Historically has supported an important recreational fishery Figures prominently in Terratin tribal lore	Native species in watershed that experienced a regional population decline after channelization project; the Devin River is an important migratory route for Greenbelly Anadromous Fish
Red Trout	Between river miles 10 and 40 of Devin River		Sport fish popular with local anglers	Common native species in watershed; its population in Devin River is supported by regular stocking by the State Wildlife Agency
Hansen Shiner	Occasionally found between river miles 20 and 40 of Devin River; more abundant in Hansen Run (an upper tributary of Devin River)			Native species in watershed; species is endemic to region
Bald Eagle	Bald Eagle nest near west bank around river mile 20 of Devin River	Federal Endangered Species Act of 1973 (Bald Eagle listed as threatened)	Local chapter of the Audubon Society has a volunteer program to monitor this Bald Eagle nest and ensure its protection	The nest near river mile 20 is still used by a breeding pair of Bald Eagles, however, two other nests in the lower part of study area have been abandoned in the last 15 years; the nesting Bald Eagles near river mile 20 use the Devin River as foraging area

Worksheet 2-2. Hypothetical Example of Worksheet Documentation after Step 2 of the Scoping Phase (continued)

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition
Peregrine Falcon	Peregrine Falcon occasionally sighted foraging in Devin River between river miles 16-20	Federal Endangered Species Act of 1973 (Peregrine Falcon listed as endangered)		Peregrine Falcon uses the Devin River as part of its large foraging area
Osprey	Three osprey nests exist in the Devin River watershed, one near river mile 16, another near river mile 28, and another near river mile 36			Osprey nesting and foraging area
Waterthrush	Riparian habitat of Devin River watershed		The local chapter of the Audubon Society recognizes the Waterthrush on its logo as a symbol of their mission to protect local bird species	Native bird species in watershed
Wandering Warbler	Neotropical migrant sighted annually in riparian habitat of Devin River watershed	U.S. Fish and Wildlife Service (USFWS) 'Migratory Nongame Birds of Management Concern in the Continental United States: 1994 list'		USFWS listing recognizes its dependence on restricted or vulnerable habitat
Northern Waterfowl	Between river miles 10 and 40 of Devin River	North American Waterfowl Management Plan		Migratory waterfowl species that uses streambank of Devin River as resting area during migration

Worksheet 2-2. Hypothetical Example of Worksheet Documentation after Step 2 of the Scoping Phase (continued)

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition
Wood Deer	Devin River watershed		Local Sport Hunting Group regularly lobbies state legislature to increase and enhance habitat for Wood Deer	
Speckled Frog	A few, isolated locations between river miles 10 and 40 of Devin River	State Natural Heritage Program List	State citizens voluntarily contribute funds annually through a state income tax check-off to support the State Natural Heritage Program	Native species in watershed
Blue Mussel	A few, isolated locations between river miles 20 and 40 of Devin River; no known specimens collected from river miles 10-20 for last 20 years			Native species in watershed; more abundant in other watersheds of the state and often used by State University scientists as an indicator species of riverine ecosystem health
Submerged Aquatic Vegetation Beds (Duck Grass and Riverweed)	Various locations; more prominent between river miles 20 and 40 of Devin River (see Map X)			Plant communities of native submerged aquatic vegetation species that create cover and breeding areas for fish and amphibians, and provide food for waterfowl

Worksheet 2-2. Hypothetical Example of Worksheet Documentation after Step 2 of the Scoping Phase (continued)

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition
Bank Tree	Riparian areas of Devin River watershed			Native species with important ecological functions in stabilizing streambank, providing riparian habitat, and shading for in-stream habitat
Bank Shrub	Riparian areas of Devin River watershed			Native species with important ecological functions in stabilizing streambank, providing cover for waterfowl

3. ANALYTICAL PHASE

The purpose of the analytical phase is to determine and document specific sources of priority recognition and to analyze information to describe the institutional, public, and technical significance of the environmental resources inventoried in the scoping phase. For each resource or ecological attribute, the interdisciplinary planning team should analyze individual sources of recognition for institutional, public, or technical significance. *If appropriate*, the interdisciplinary planning team should then examine the relative significance of each resource through analyzing relative importance rankings (Step 6), levels of significance (Step 7), and signifiscores (Step 8).

Step 3--Review Information from Scoping Phase

Review all existing information for those potentially significant environmental resources identified in the scoping phase. This step is particularly useful in planning studies for larger restoration projects where the planning team may have to complete several iterations of the phases of the protocol.

Step 4--Analyze Sources of Significance

Analyze information about individual sources of recognition for the institutional, public, or technical significance of each potentially significant resource associated with the study area. Typically, the analytical phase will involve analyzing information from existing programs, established agency or organization processes, and readily available products (e.g., plans, reports, databases) that can assist in determining and describing the significance of environmental resources. While some fieldwork or original research may occasionally be necessary for the analytical phase, such efforts will depend on resources available for the planning study.

For each resource, its significance may be recognized on more than one basis. For example, a specific bird species may be institutionally recognized (e.g., listed as an endangered or threatened species under the Endangered Species Act of 1973), publicly recognized (of interest to a local birding club), and technically recognized (due to its scarcity nationwide or within a region). The analytical phase should identify and document all supportable bases of significance for the environmental resources associated with the study area.

Steps 4a-4c are outlined below to guide the interdisciplinary planning team in analyzing information about individual sources of recognition for the institutional, public, or technical significance of each resource. Examples of questions to assist the planning team in analyzing information about potentially significant resources are presented in Exhibit 3-1 (wetlands), Exhibit 3-2 (rivers), and Exhibit 3-3 (estuaries or marine areas).

Step 4a-Institutional

Analyze sources of significance based on institutional recognition.



Add information on sources of institutional significance to the third column of the significance protocol worksheet. See Worksheet 3-1 for examples for Step 4a.

Guidance on how to analyze the importance of an environmental resource based on institutional recognition is provided in Chapter 3 of *Significance in Environmental Project Planning: Resource Document* (see Addendum to this report). It focuses on providing examples of existing programs, established agency or organization processes, and readily available products that can assist in determining institutional significance. These examples were selected because they are considered relevant to determinations of significance under the Corps environmental program. The examples, however, are not an all-inclusive listing of potential sources of institutional recognition. Planners should use the examples as a guide in identifying and analyzing other appropriate sources of institutional recognition.

Examples of questions to assist the planning team in analyzing the institutional significance of environmental resources are presented in Exhibit 3-1 (wetlands), Exhibit 3-2 (rivers), and Exhibit 3-3 (estuaries or marine areas).

Exhibit 2-4 in this report also provides examples of existing programs and information that can assist in identifying sources of significance based on institutional recognition.

Step 4b-Public

Analyze sources of significance based on public recognition.



Add information on sources of public significance to the fourth column of the significance protocol worksheet. See Worksheet 3-1 for examples for Step 4b.

Guidance on how to analyze public recognition of the importance of an environmental resource is provided in Chapter 4 of *Significance in Environmental Project Planning: Resource Document* (see Addendum to this report).

Examples of questions to assist the planning team in analyzing the public significance of environmental resources are presented in Exhibit 3-1 (wetlands), Exhibit 3-2 (rivers), and Exhibit 3-3 (estuaries or marine areas).

Exhibit 2-5 in this report also provides examples of forms of public recognition and means of identifying sources of significance based on public recognition.

Step 4c-Technical

Analyze sources of significance based on technical recognition.



Add information on sources of technical significance to the fifth column of the significance protocol worksheet. See Worksheet 3-1 for examples for Step 4c.

Guidance on how to analyze technical recognition of the importance of an environmental resource is provided in Chapter 5 of *Significance in Environmental Project Planning: Resource Document* (see Addendum to this report). It focuses on providing examples of key criteria or concepts that can assist in determining technical significance.

Examples of questions to assist the planning team in analyzing the technical significance of environmental resources are presented in Exhibit 3-1 (wetlands), Exhibit 3-2 (rivers), and Exhibit 3-3 (estuaries or marine areas).

Exhibit 2-6 in this report also provides examples of criteria or concepts relevant to technical recognition of the significance of an environmental resource.

Exhibit 3-1. Questions to Assist in Identifying Potentially Significant Wetlands

INSTITUTIONAL

- Is this wetland within any of the priority habitat areas targeted to begin implementation of the North American Waterfowl Management Plan (NAWMP)? Is it within one of the NAWMP-identified waterfowl habitat areas of major concern? Is it within one of the joint ventures established under NAWMP?
- Does this wetland meet the assessment criteria used in the National Wetlands Priority Conservation Plan for warranting priority attention for acquisition?
- Is this wetland within any of the U.S. wetlands included on the List of Wetlands of International Importance designated under the Ramsar Convention?
- Has the state resource agency classified this wetland as of any special significance?
- Does Wetlands for the Americas list any of the wetlands in this area in its Western Hemisphere Shorebird Reserve Network?

PUBLIC

- Are there any physical signs of active stewardship by the public in the wetland area--duck nesting boxes, tree planting, interpretive signing--or scheduled activities?
- Are there interest groups organized to protect or publicize this wetland and its values?
- Is any group trying to raise money over issues associated with this wetland?
- Does the wetland serve as an educational resource (e.g., an outdoor classroom for school programs)?

TECHNICAL

- Is this wetland type scarce within the region or nationwide? Has this wetland type exhibited a declining trend?
- Is there published literature identifying the significance of this wetland or describing important functions and values for this wetland?
- Does this wetland contain any critical habitat designated under the Endangered Species Act?

Exhibit 3-2. Questions to Assist in Identifying Potentially Significant Rivers

INSTITUTIONAL

- Is this river (or river segment) among the river segments listed in the Nationwide Rivers Inventory as potentially qualifying for the National Wild and Scenic Rivers System?
- Is this river (or river segment) one of the river segments currently designated under the National Wild and Scenic Rivers System?
- Does this river flow through or about any site designated under the National Natural Landmarks Program?
- Does this river or its watershed have any species listed by the state's National Heritage Program?
- Does this river or its watershed provide habitat for species recognized as of special concern, such as the American Fisheries Society's list of imperiled North American freshwater fish species and subspecies, or the USFWS Office of Migratory Bird Management species lists?
- Has American Rivers included this river on its Outstanding Rivers List?

PUBLIC

- Are any local, state, or national groups working to have this river studied for designation as a wild, scenic, or recreational river?
- Is there an organized "Friends of . . ." group active for this river?
- Are any festivals or tribal ceremonies associated with this river?
- Is the river traditionally used for low intensity recreation (e.g., canoeing)?

TECHNICAL

- Does this river flow through or affect the ecological viability of any component of a unique resource or a protected area such as refuges in the National Wildlife Refuge System?
- Does this river or its tributaries provide connectivity functions essential to the survival of anadromous fish species, or does its riparian zone provide important habitat for resident or migratory mammal or bird species?

Exhibit 3-3. Questions to Assist in Identifying Potentially Significant Estuaries or Marine Areas

INSTITUTIONAL

- Does this estuary fall within any of the North American Waterfowl Management Plan's waterfowl habitat areas of major concern?
- Have activities in this estuary or marine area been prioritized by a Regional Implementation Team under the Coastal America initiative?
- Is this area within an estuary that has been selected, or nominated, for EPA's National Estuary Program?
- Is this area within a Gulf Ecological Management Site designated under EPA's Gulf of Mexico Program, or is it recognized as important in other regional programs such as the Chesapeake Bay Program?
- Is this area within a National Marine Sanctuary designated under the National Marine Sanctuary Program, or has it been selected to become an Active Candidate through the Site Evaluation List process?
- Is this area protected by the coastal regulations of any state coastal agency or commission under the Coastal Zone Management Act, or similar state law?
- Is this area included in any coastal state's critical area program?

PUBLIC

- Was public support important in having the estuary selected under the National Estuary Program, or the marine area designated as a National Marine Sanctuary?
- Have activities of groups organized to protect the estuary, or species that depend on the estuary for habitat, gained the support of the local population?

TECHNICAL

- Have any universities or colleges (e.g., Sea Grant universities) conducted research programs providing information on the significance of this estuary or marine area?
- Are the ecological conditions in the estuary declining? If so, how rapidly have the ecological conditions been declining?

Step 5--Document Sources of Recognition



Document individual sources of recognition for each environmental resource on the worksheet begun in the scoping phase. The individual sources of recognition may be coded on the worksheet using a coding system developed by the interdisciplinary planning team that references supporting documentation. In cases where the significance of a resource is recognized on more than one basis, the code for each individual source should be listed for each type of recognition (i.e., institutional, public, or technical) that applies for that resource. If no appropriate sources of recognition exist for a particular resource, then document that the resource lacked appropriate bases for significance.

All supporting documentation should be clear and concise, retained on file, and its availability referenced in the planning report. In most cases, narrative statements (ranging from short notes with appropriate citations to more extensive descriptions) are appropriate supporting documentation of individual sources of recognition for particular environmental resources or groups of resources. Additional formats that may be used for supporting documentation include lists, tables, maps, photographs, and other formats that accurately record information.

Devin River Restoration Project--Hypothetical Example



The interdisciplinary planning team documented existing information regarding likely sources of institutional, public, and technical recognition for each potentially significant environmental resource associated with the study area. This information was recorded in Worksheet 3-1 for each resource under the appropriate column (institutional, public, or technical) describing the sources of significance.

From Worksheet 3-1, it is possible to begin making some inferences about the significance of environmental resources associated with the study area. The existence of multiple forms of recognition for some environmental resources indicates that those resources are probably environmental resources of some significance.

Worksheet 3-1. Hypothetical Example of Worksheet Documentation after Step 5 of the Analytical Phase

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition
Greenbellied Anadromous Fish	Migrates up Devin River during spring spawning season to the upper tributaries (Little Deep Fork Creek and Hansen Run) for spawning	Federal Anadromous Fish Conservation Act of 1965 American Fisheries Society (AFS) list of "Fishes of North America--Endangered, Threatened, or of Special Concern: 1989" (Greenbellied Anadromous Fish is recognized by AFS as a native freshwater fish species of special concern)	Historically has supported an important recreational fishery Figures prominently in Terratin tribal lore; because of its importance, the Terratin Tribe has sent letters to the Corps seeking restoration of in-stream habitat in the Devin River for migrating Greenbellied Anadromous Fish	Native species in watershed that experienced a regional population decline after channelization project; the Devin River is an important migratory route for Greenbellied Anadromous Fish; the upper tributaries of Devin River are recognized by the State Wildlife Agency as important spawning habitat for Greenbellied Anadromous Fish
Red Trout	Between river miles 10 and 40 of Devin River		Sport fish popular with local anglers	Common native species in watershed; its population in Devin River is supported by regular stocking by the State Wildlife Agency
Hansen Shiner	Occasionally found between river miles 20 and 40 of Devin River; more frequent between river miles 25 and 40 although not abundant; more abundant in Hansen Run (an upper tributary of Devin River)	American Fisheries Society (AFS) list of "Fishes of North America--Endangered, Threatened, or of Special Concern: 1989" (Hansen Shiner is recognized by AFS as a threatened native freshwater fish species)		Native species in watershed that was extirpated between river miles 10 and 20 after channelization project and has experienced population declines between river miles 20 and 40 of Devin River after channelization project; species is endemic to region

Worksheet 3-1. Hypothetical Example of Worksheet Documentation after Step 5 of the Analytical Phase (continued)

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition
Bald Eagle	Bald Eagle nest near west bank around river mile 20 of Devin River	Federal Endangered Species Act of 1973 (Bald Eagle listed as threatened)	Local chapter of the Audubon Society has a volunteer program to monitor this Bald Eagle nest and ensure its protection	The nest near river mile 20 is still used by a breeding pair of Bald Eagles, however, two other nests in the lower part of study area have been abandoned in the last 15 years; the nesting Bald Eagles near river mile 20 use the Devin River as foraging area
Peregrine Falcon	Peregrine Falcon occasionally sighted foraging in Devin River between river miles 16-20	Federal Endangered Species Act of 1973 (Peregrine Falcon listed as endangered)		Peregrine Falcon uses the Devin River as part of its large foraging area (nest is located in upper tributaries)
Osprey	Three osprey nests exist in the Devin River watershed, one near river mile 16, another near river mile 28, and another near river mile 36			Osprey nesting and foraging area
Waterthrush	Riparian habitat of Devin River watershed		The local chapter of the Audubon Society recognizes the Waterthrush on its logo as a symbol of their mission to protect local bird species	Native bird species in watershed; its riparian habitat was fragmented and has declined since the channelization project

Worksheet 3-1. Hypothetical Example of Worksheet Documentation after Step 5 of the Analytical Phase (continued)

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition
Wandering Warbler	Neotropical migrant sighted annually in riparian habitat of Devin River watershed	U.S. Fish and Wildlife Service (USFWS) "Migratory Nongame Birds of Management Concern in the Continental United States: 1994 list"		Riparian habitat of the Devin River functions as resting area/migrational habitat for the Wandering Warbler; the USFWS listing recognizes its dependence on restricted or vulnerable habitat
Northern Waterfowl	Between river miles 10 and 40 of Devin River	North American Waterfowl Management Plan (the Devin River watershed is located within a U.S. Joint Venture established under the Plan)	Ducks Unlimited and other conservation organizations are active partners supporting the objectives of the Joint Venture under the North American Waterfowl Management Plan	Migratory waterfowl species that uses streambank of Devin River as resting area during migration
Wood Deer	Devin River watershed		Local Sport Hunting Group regularly lobbies state legislature to increase and enhance habitat for Wood Deer	Riparian habitat of Devin River functions as a migratory corridor for Wood Deer and provides protection from natural predators
Speckled Frog	A few, isolated locations between river miles 10 and 40 of Devin River	State Natural Heritage Program List (Speckled Frog is listed as rare in the state; S3 ranking)	State citizens voluntarily contribute funds annually through a state income tax check-off to support the State Natural Heritage Program	Native species in watershed; dependent on submerged aquatic vegetation for breeding habitat

Worksheet 3-1. Hypothetical Example of Worksheet Documentation after Step 5 of the Analytical Phase (continued)

Resource	Location	Sources of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition
Blue Mussel	A few, isolated locations between river miles 20 and 40 of Devin River, no known specimens collected from river miles 10-20 for last 20 years			Native species in watershed; more abundant in other watersheds of the state and often used by State University scientists as an indicator species of riverine ecosystem health
Submerged Aquatic Vegetation Beds (Duck Grass and Riverweed)	Various locations; more prominent between river miles 20 and 40 of Devin River (see Map X)			Plant communities of native submerged aquatic vegetation species that create cover and breeding areas for fish and amphibians, and provide food for waterfowl
Bank Tree	Riparian areas of Devin River watershed			Native species with important ecological functions in stabilizing streambank, providing riparian habitat, and shading for in-stream habitat
Bank Shrub	Riparian areas of Devin River watershed			Native species with important ecological functions in stabilizing streambank, providing cover for waterfowl

DECISION POINT!



The planning team should decide whether to:

Proceed with Steps 6, 7, and 8, OR

Proceed directly to the evaluation phase.

Steps 6, 7, and 8 are **optional** steps in the analytical phase. These steps are useful primarily for larger environmental projects or those smaller scale projects where there has been difficulty reaching consensus among the interdisciplinary planning team. The purpose of the scoring process outlined in Steps 6, 7, and 8 is to assist the planning team in organizing information or reaching consensus about the relative significance of environmental resources associated with the study area.

These optional steps recognize that adjectives describing significance are less than exact. Yet, a common vernacular may be necessary to facilitate communication and consensus among the planning team.

To achieve this objective, Steps 6, 7, and 8 use rankings and scores that assign values to individual environmental resources. *These values, however, are essentially meaningless outside the context of the internal decision making process of the planning team--for that study, for those resources, and at that time.* The rankings and scores may be recorded in documentation for a planning study, but typically the scoring process and values should not be described, or otherwise accounted for, in a planning report.

Step 6--Determine Relative Importance Rankings



Rank the environmental resources on the worksheet using an agreed upon numerical ranking system for the relative importance of the resource. This ranking process should be conducted by the interdisciplinary planning team. The recommended approach to this relative importance ranking is outlined below:

Extremely significant = 5

Very significant = 4

Significant = 3

Not very significant = 2

Not significant = 1

The relative importance ranking process is clearly subjective, but will indicate relative scores for significance when combined with the level of significance (Step 7) determined for each resource. Add the relative importance rankings to the sixth column of the significance protocol worksheet. See Worksheet 3-2 for examples for Step 6.

Step 7--Determine Levels of Significance



Determine the level of significance (i.e., national/international, regional, state, or local) for each environmental resource on the worksheet. The interdisciplinary planning team should use existing information and the analysis of individual sources of recognition to estimate the overall level or perspective from which a particular resource is recognized as important. Levels of significance may be ranked with a hierarchical numerical system, such that:

National/International = 4

Regional = 3

State = 2

Local = 1

More detailed guidance on the types of information and programs that can be used to determine the level of significance are provided in the chapters for institutional (Chapter 3), public (Chapter 4), and technical significance (Chapter 5) in *Significance in Environmental Project Planning: Resource Document* (see Addendum to this report). In particular, the examples of sources of recognition presented in Chapters 3 and 4 are organized by level of significance. Planners should use the examples as a guide in determining the level of significance for other sources of recognition.

Add the determinations for levels of significance to the seventh column of the significance protocol worksheet. See Worksheet 3-2 for a hypothetical example of worksheet documentation after Steps 6 and 7 of the analytical phase.

Devin River Restoration Project--Hypothetical Example



Worksheet 3-2 supplements Worksheet 3-1 with additional columns for relative importance ranking (Step 6) and level of significance (Step 7). To complete Step 6 of the protocol (determine relative importance rankings), the interdisciplinary planning team met to develop and agree upon a numerical ranking system. The interdisciplinary planning team met again to assign relative importance rankings to each potentially significant environmental resource. These rankings were recorded in the column labeled relative importance ranking (sixth column) in Worksheet 3-2. In this example, as suggested above, relative importance rankings ranged from 1 (not significant) to 5 (extremely significant).

The interdisciplinary planning team then considered Step 7 of the protocol (determine levels of significance), and at the same meeting, determined the level of significance (i.e.,

national/international, regional, state, or local) for each potentially significant environmental resource on the worksheet. These determinations were recorded on Worksheet 3-2 under the column labeled level of significance (seventh column) using the hierarchical numerical system suggested above under Step 7 (i.e., nationally or internationally significant resources received the highest ranking of 4, while regionally significant resources were ranked as 3, state as 2, and locally significant as 1).

Worksheet 3-2 provides information to assist in determining the relative significance of different environmental resources associated with the study area. For example, the Greenbellied Anadromous Fish received a relative importance ranking of 5 (extremely significant) and a level of significance ranking of 3 (regional). The Bald Eagle, Peregrine Falcon, and Northern Waterfowl received a relative importance ranking of 5 (extremely significant) and a level of significance ranking of 4 (national/international). The Speckled Frog received a relative importance ranking of 4 (very significant) and a level of significance ranking of 2 (state).

Worksheet 3-2. Hypothetical Example of Worksheet Documentation after Steps 6 & 7 of the Analytical Phase

Resource	Location	Determinants of Relative Significance				Relative Importance Ranking	Level of Significance
		Sources of Significance			Technical Recognition		
		Institutional Recognition	Public Recognition				
Greenbelled Anadromous Fish	Migrates up Devin River during spring spawning season to the upper tributaries (Little Deep Fork Creek and Hansen Run) for spawning	Federal Anadromous Fish Conservation Act of 1965 American Fisheries Society (AFS) list of "Fishes of North America--Endangered, Threatened, or of Special Concern: 1989" (Greenbelled Anadromous Fish is recognized by AFS as a native freshwater fish species of special concern)	Historically has supported an important recreational fishery Figures prominently in Terratin tribal lore; because of its importance, the Terratin Tribe has sent letters to the Corps seeking restoration of in-stream habitat in the Devin River for migrating Greenbelled Anadromous Fish	Native species in watershed that experienced a regional population decline after channelization project; the Devin River is an important migratory route for Greenbelled Anadromous Fish; the upper tributaries of Devin River are recognized by the State Wildlife Agency as important spawning habitat for Greenbelled Anadromous Fish	5	3	
Red Trout	Between river miles 10 and 40 of Devin River		Sport fish popular with local anglers	Common native species in watershed; its population in Devin River is supported by regular stocking by the State Wildlife Agency	2	1	

Worksheet 3-2. Hypothetical Example of Worksheet Documentation after Steps 6 & 7 of the Analytical Phase (continued)

Resource	Location	Determinants of Relative Significance				Relative Importance Ranking	Level of Significance
		Sources of Significance			Technical Recognition		
		Institutional Recognition	Public Recognition				
Hansen Shiner	Occasionally found between river miles 20 and 40 of Devin River, more frequent between river miles 25 and 40 although not abundant; more abundant in Hansen Run (an upper tributary of Devin River)	American Fisheries Society (AFS) list of "Fishes of North America--Endangered, Threatened, or of Special Concern: 1989" (Hansen Shiner is recognized by AFS as a threatened native freshwater fish species)			Native species in watershed that was extirpated between river miles 10 and 20 after channelization project and has experienced population declines between river miles 20 and 40 of Devin River after channelization project; species is endemic to region	4	3
Bald Eagle	Bald Eagle nest near west bank around river mile 20 of Devin River	Federal Endangered Species Act of 1973 (Bald Eagle listed as threatened)	Local chapter of the Audubon Society has a volunteer program to monitor this Bald Eagle nest and ensure its protection		The nest near river mile 20 is still used by a breeding pair of Bald Eagles, however, two other nests in the lower part of study area have been abandoned in the last 15 years; the nesting Bald Eagles near river mile 20 use the Devin River as foraging area	5	4

Worksheet 3-2. Hypothetical Example of Worksheet Documentation after Steps 6 & 7 of the Analytical Phase (continued)

Resource	Location	Determinants of Relative Significance					Relative Importance Ranking	Level of Significance
		Sources of Significance			Technical Recognition			
		Institutional Recognition	Public Recognition					
Peregrine Falcon	Peregrine Falcon occasionally sighted foraging in Devin River between river miles 16-20	Federal Endangered Species Act of 1973 (Peregrine Falcon listed as endangered)			Peregrine Falcon uses the Devin River as part of its large foraging area (nest is located in upper tributaries)	5	4	
Osprey	Three osprey nests exist in the Devin River watershed, one near river mile 16, another near river mile 28, and another near river mile 36				Osprey nesting and foraging area	3	4	
Waterthrush	Riparian habitat of Devin River watershed		The local chapter of the Audubon Society recognizes the Waterthrush on its logo as a symbol of their mission to protect local bird species		Native bird species in watershed; its riparian habitat was fragmented and has declined since the channelization project	2	1	

Worksheet 3-2. Hypothetical Example of Worksheet Documentation after Steps 6 & 7 of the Analytical Phase (continued)

Resource	Location	Determinants of Relative Significance				Relative Importance Ranking	Level of Significance
		Sources of Significance			Technical Recognition		
		Institutional Recognition	Public Recognition				
Wandering Warbler	Neotropical migrant sighted annually in riparian habitat of Devin River watershed	U.S. Fish and Wildlife Service (USFWS) "Migratory Nongame Birds of Management Concern in the Continental United States: 1994 list"		Riparian habitat of the Devin River functions as resting area/migrational habitat for the Wandering Warbler; the USFWS listing recognizes its dependence on restricted or vulnerable habitat	4	4	
Northern Waterfowl	Between river miles 10 and 40 of Devin River	North American Waterfowl Management Plan (the Devin River watershed is located within a U.S. Joint Venture established under the Plan)	Ducks Unlimited and other conservation organizations are active partners supporting the objectives of the Joint Venture under the North American Waterfowl Management Plan	Migratory waterfowl species that uses streambank of Devin River as resting area during migration	5	4	
Wood Deer	Devin River watershed		Local Sport Hunting Group regularly lobbies state legislature to increase and enhance habitat for Wood Deer	Riparian habitat of Devin River functions as a migratory corridor for Wood Deer and provides protection from natural predators	2	2	

Worksheet 3-2. Hypothetical Example of Worksheet Documentation after Steps 6 & 7 of the Analytical Phase (continued)

Resource	Location	Determinants of Relative Significance					Relative Importance Ranking	Level of Significance
		Sources of Significance			Technical Recognition			
		Institutional Recognition	Public Recognition					
Speckled Frog	A few, isolated locations between river miles 10 and 40 of Devin River	State Natural Heritage Program List (Speckled Frog is listed as rare in the state; S3 ranking)	State citizens voluntarily contribute funds annually through a state income tax check-off to support the State Natural Heritage Program		Native species in watershed; dependent on submerged aquatic vegetation for breeding habitat	4	2	
Blue Mussel	A few, isolated locations between river miles 20 and 40 of Devin River; no known specimens collected from river miles 10-20 for last 20 years				Native species in watershed; more abundant in other watersheds of the state and often used by State University scientists as an indicator species of riverine ecosystem health	3	2	
Submerged Aquatic Vegetation Beds (Duck Grass and Riverweed)	Various locations; more prominent between river miles 20 and 40 of Devin River (see Map X)				Plant communities of native submerged aquatic vegetation species that create cover and breeding areas for fish and amphibians, and provide food for waterfowl	3	3	

Worksheet 3-2. Hypothetical Example of Worksheet Documentation after Steps 6 & 7 of the Analytical Phase (continued)

Resource	Location	Determinants of Relative Significance					Relative Importance Ranking	Level of Significance
		Sources of Significance			Technical Recognition			
		Institutional Recognition	Public Recognition					
Bank Tree	Riparian areas of Devin River watershed				Native species with important ecological functions in stabilizing streambank, providing riparian habitat, and shading for in-stream habitat	3	3	
Bank Shrub	Riparian areas of Devin River watershed				Native species with important ecological functions in stabilizing streambank, providing cover for waterfowl	2	3	

Step 8--Determine Signifiscores



Multiply relative importance rankings (Step 6) and levels of significance (Step 7) in the worksheet to form a signifiscore for each environmental resource. The signifiscores are not intended for use as nationally comparable rankings, but instead to assist the interdisciplinary planning team through the decision making process to prioritize resource significance for resources associated with the study area for a proposed restoration project. Additionally, the signifiscores are not intended for use as absolute measures of significance. The interdisciplinary planning team should use the signifiscores as a method to organize and document decisions to determine which environmental resources associated with a proposed restoration project have the greatest **relative** significance.

The matrix below depicts the manner in which the recommended relative importance ranking system and level of significance can be used to help prioritize resource significance.

		LEVEL OF SIGNIFICANCE			
		National (4)	Regional (3)	State (2)	Local (1)
RELATIVE IMPORTANCE RANKING	5	20	15	10	5
	4	16	12	8	4
	3	12	9	6	3
	2	8	6	4	2
	1	4	3	2	1

The analytical phase produces an expanded worksheet along with any supporting documentation collected by the interdisciplinary planning team. All supporting documentation should be retained on file and referenced in the planning report. The worksheet determines the most significant resources by prioritizing among relative importance rankings and levels of significance. The worksheet can be used to identify those resources that should be emphasized in the evaluation phase.

See Worksheet 3-3 for a hypothetical example of worksheet documentation after completion of Step 8 of the analytical phase.

Devin River Restoration Project--Hypothetical Example



To complete Step 8 of the protocol (signifiscores), the interdisciplinary planning team multiplied the relative importance rankings (Step 6) by the levels of significance (Step 7) to arrive at one signifiscore (Step 8) for each potentially significant environmental resource. To compute the signifiscore for the Greenbellied Anadromous Fish, for example, the interdisciplinary planning team multiplied the score of 5 for relative importance ranking with the score of 3 for level of significance, to obtain a signifiscore of 15. The signifiscores were recorded on Worksheet 3-3 under the column labeled signifiscore.

As demonstrated by Worksheet 3-3, the signifiscores provide a basis for comparison among potentially significant environmental resources. For example, it is clear that the Greenbellied Anadromous Fish, which has a signifiscore of 15, is a more significant resource than the Red Trout, which has a signifiscore of 2. Furthermore, beyond comparative signifiscores, Worksheet 3-3 provides information on the sources of significance that supported determination of the signifiscores. As an example, the worksheet documents that the Greenbellied Anadromous Fish has more sources of significance than the Red Trout. The worksheet also documents the ranking process by which the interdisciplinary planning team determined that some environmental resources associated with the study area have **relatively** greater significance.

Worksheet 3-3. Hypothetical Example of Worksheet Documentation after Step 8 of the Analytical Phase

Resource	Location	Determinants of Relative Significance					Significance Score
		Sources of Significance			Relative Importance Ranking	Level of Significance	
		Institutional Recognition	Public Recognition	Technical Recognition			
Greenbellied Anadromous Fish	Migrates up Devin River during spring spawning season to the upper tributaries (Little Deep Fork Creek and Hansen Run) for spawning	Federal Anadromous Fish Conservation Act of 1965 American Fisheries Society (AFS) list of "Fishes of North America--Endangered, Threatened, or of Special Concern: 1989" (Greenbellied Anadromous Fish is recognized by AFS as a native freshwater fish species of special concern)	Historically has supported an important recreational fishery Figures prominently in Terratin tribal lore, because of its importance, the Terratin Tribe has sent letters to the Corps seeking restoration of in-stream habitat in the Devin River for migrating Greenbellied Anadromous Fish	Native species in watershed that experienced a regional population decline after channelization project; the Devin River is an important migratory route for Greenbellied Anadromous Fish; the upper tributaries of Devin River are recognized by the State Wildlife Agency as important spawning habitat for Greenbellied Anadromous Fish	5	3	15
Red Trout	Between river miles 10 and 40 of Devin River		Sport fish popular with local anglers	Common native species in watershed; its population in Devin River is supported by regular stocking by the State Wildlife Agency	2	1	2

Worksheet 3-3. Hypothetical Example of Worksheet Documentation after Step 8 of the Analytical Phase (continued)

Resource	Location	Determinants of Relative Significance					Significance Score
		Sources of Significance			Relative Importance Ranking	Level of Significance	
		Institutional Recognition	Public Recognition	Technical Recognition			
Hansen Shiner	Occasionally found between river miles 20 and 40 of Devin River; more frequent between river miles 25 and 40 although not abundant; more abundant in Hansen Run (an upper tributary of Devin River)	American Fisheries Society (AFS) list of "Fishes of North America--Endangered, Threatened, or of Special Concern: 1989" (Hansen Shiner is recognized by AFS as a threatened native freshwater fish species)		Native species in watershed that was extirpated between river miles 10 and 20 after channelization project and has experienced population declines between river miles 20 and 40 of Devin River after channelization project; species is endemic to region	4	3	12
Bald Eagle	Bald Eagle nest near west bank around river mile 20 of Devin River	Federal Endangered Species Act of 1973 (Bald Eagle listed as threatened)	Local chapter of the Audubon Society has a volunteer program to monitor this Bald Eagle nest and ensure its protection	The nest near river mile 20 is still used by a breeding pair of Bald Eagles, however, two other nests in the lower part of study area have been abandoned in the last 15 years; the nesting Bald Eagles near river mile 20 use the Devin River as foraging area	5	4	20

Worksheet 3-3. Hypothetical Example of Worksheet Documentation after Step 8 of the Analytical Phase (continued)

Resource	Location	Determinants of Relative Significance					Significance Score	
		Sources of Significance			Relative Importance Ranking	Level of Significance		
		Institutional Recognition	Public Recognition	Technical Recognition				
Peregrine Falcon	Peregrine Falcon occasionally sighted foraging in Devin River between river miles 16-20	Federal Endangered Species Act of 1973 (Peregrine Falcon listed as endangered)			Peregrine Falcon uses the Devin River as part of its large foraging area (nest is located in upper tributaries)	5	4	20
Osprey	Three osprey nests exist in the Devin River watershed, one near river mile 16, another near river mile 28, and another near river mile 36				Osprey nesting and foraging area	3	4	12
Waterthrush	Riparian habitat of Devin River watershed		The local chapter of the Audubon Society recognizes the Waterthrush on its logo as a symbol of their mission to protect local bird species		Native bird species in watershed; its riparian habitat was fragmented and has declined since the channelization project	2	1	2

Worksheet 3-3. Hypothetical Example of Worksheet Documentation after Step 8 of the Analytical Phase (continued)

Resource	Location	Determinants of Relative Significance				Significance Score
		Sources of Significance			Relative Importance Ranking	
		Institutional Recognition	Public Recognition	Technical Recognition		
Wandering Warbler	Neotropical migrant sighted annually in riparian habitat of Devin River watershed	U.S. Fish and Wildlife Service (USFWS) "Migratory Nongame Birds of Management Concern in the Continental United States: 1994 list"		Riparian habitat of the Devin River functions as resting area/migrational habitat for the Wandering Warbler, the USFWS listing recognizes its dependence on restricted or vulnerable habitat	4	16
Northern Waterfowl	Between river miles 10 and 40 of Devin River	North American Waterfowl Management Plan (the Devin River watershed is located within a U.S. Joint Venture established under the Plan)	Ducks Unlimited and other conservation organizations are active partners supporting the objectives of the Joint Venture under the North American Waterfowl Management Plan	Migratory waterfowl species that uses streambank of Devin River as resting area during migration	5	20

Worksheet 3-3. Hypothetical Example of Worksheet Documentation after Step 8 of the Analytical Phase (continued)

Resource	Location	Determinants of Relative Significance					Significance Score
		Sources of Significance			Relative Importance Ranking	Level of Significance	
		Institutional Recognition	Public Recognition	Technical Recognition			
Wood Deer	Devin River watershed		Local Sport Hunting Group regularly lobbies state legislature to increase and enhance habitat for Wood Deer	Riparian habitat of Devin River functions as a migratory corridor for Wood Deer and provides protection from natural predators	2	2	4
Speckled Frog	A few, isolated locations between river miles 10 and 40 of Devin River	State Natural Heritage Program List (Speckled Frog is listed as rare in the state; S3 ranking)	State citizens voluntarily contribute funds annually through a state income tax check-off to support the State Natural Heritage Program	Native species in watershed; dependent on submerged aquatic vegetation for breeding habitat	4	2	8
Blue Mussel	A few, isolated locations between river miles 20 and 40 of Devin River; no known specimens collected from river miles 10-20 for last 20 years			Native species in watershed; more abundant in other watersheds of the state and often used by State University scientists as an indicator species of riverine ecosystem health	3	2	6

Worksheet 3-3. Hypothetical Example of Worksheet Documentation after Step 8 of the Analytical Phase (continued)

Resource	Location	Determinants of Relative Significance					Significance
		Sources of Significance			Relative Importance Ranking	Level of Significance	
		Institutional Recognition	Public Recognition	Technical Recognition			
Submerged Aquatic Vegetation Beds (Duck Grass and Riverweed)	Various locations; more prominent between river miles 20 and 40 of Devin River (see Map X)			Plant communities of native submerged aquatic vegetation species that create cover and breeding areas for fish and amphibians, and provide food for waterfowl	3	3	9
Bank Tree	Riparian areas of Devin River watershed			Native species with important ecological functions in stabilizing streambank, providing riparian habitat, and shading for in-stream habitat	3	3	9
Bank Shrub	Riparian areas of Devin River watershed			Native species with important ecological functions in stabilizing streambank, providing cover for waterfowl	2	3	6

4. EVALUATION PHASE

The purpose of the evaluation phase is to determine the most significant resources by further prioritizing resource significance for environmental resources associated with the study area for a proposed restoration project. The evaluation process should identify the most significant resources to be included in the significance statement for a planning report. Generally, the most significant resources are those environmental resources that are considered significant from a national or regional perspective and support current policy, planning, and budgetary guidance for the Corps environmental program.

Application of the evaluation phase for each type of study is described below:



Reconnaissance Studies. The evaluation phase for a reconnaissance study involves evaluating specific sources of recognition identified for resources associated with the study area and determining whether a Federal interest exists to proceed to a feasibility study. Significance at the national and regional levels is typically necessary to establish the Federal interest in a proposed restoration project.



Feasibility Studies. For a feasibility study, the evaluation phase involves determining the most significant resources by further prioritizing resource significance and evaluating the significance determinations against Corps policy, planning, and budgetary guidance.

Step 9--Prioritize Resources and Evaluate Policy Considerations



Review the signifiscores (Step 8), if determined by the interdisciplinary planning team in the analytical phase and prioritize among the resources by using the signifiscores to identify those resources with the greatest relative significance. The signifiscores are useful, not to provide data establishing significance, but because they provide a method to organize and document decisions to determine those resources with the greatest **relative** significance. Resources of lesser significance (e.g., with lower signifiscores) may not be fully developed in the planning study.

If the interdisciplinary planning team did not determine signifiscores, and skipped Steps 6-8, then potentially significant environmental resources can be further prioritized by identifying those resources that are considered of national or international importance as the most significant. Environmental resources considered of regional importance would be of lesser significance, and likewise, environmental resources considered of state importance or local importance only would have even less significance, respectively.

After prioritizing environmental resources, the interdisciplinary planning team should then examine current policy, planning, and budgetary guidance for the Corps environmental program. Policy, planning, and budgetary guidance that are relevant to a proposed restoration project should be evaluated to assist in further prioritizing resource significance. Exhibit 4-1 provides references to current Corps policy documents for the environmental program (e.g., memorandums, policy guidance letters, planning and policy guidance, and strategic plans).

Current Corps policy, planning, and budgetary guidance should be evaluated to illuminate whether current Corps policy and guidance support the determinations of significance



Are the significant environmental resources closely tied to Corps missions and areas of expertise (e.g., generally it is less appropriate to focus on significant upland, terrestrial resources, or significant environmental resources that are not directly associated with, or directly dependent upon, the hydrologic regime of the ecosystem and watershed)?

Is there a clear relationship between the significant environmental resources and a priority project purpose identified in Corps Civil Works budget guidance?

Is the resource significant because of its environmental importance and support of the Corps environmental program rather than importance from an historical, cultural, aesthetic, or water-oriented recreation perspective?

Are the significant environmental resources associated with national or regional interagency programs, such that other Federal and state resource agencies could cooperate in planning and implementing the restoration project, and the project could make a significant contribution to the interagency program(s)?

The evaluation phase produces a list of the most significant resources associated with the study area for a proposed project. This list should be documented along with the worksheet and its supporting documentation. The list highlights those resources that will be identified and described in significance statements prepared in the communication phase.

Exhibit 4-1. References to Policy Documents for Corps Environmental Program

ER 1105-2-100, "Guidance for Conducting Civil Works Planning Studies," (also known as the "Planning Guidance Notebook" (PGN)), 28 December 1990 (currently under revision).

EC 1105-2-210, "Ecosystem Restoration in the Civil Works Program," 1 June 1995.

EC 1105-2-209, "Implementing Ecosystem Restoration Projects in Connection with Dredging," 31 August 1995.

EC 1105-2-206, "Project Modifications for Improvement of the Environment," (DRAFT) 1995.

ER 1165-2-119, "Modifications to Completed Projects," 20 September 1982.

ER 5-7-1 (FR), "Project Management," 30 September 1992.

ER 200-2-2, "Procedures for Implementing NEPA," 8 March 1988.

Policy Guidance Letter No. 24, "Restoration of Fish and Wildlife Habitat Resources," 7 March 1991.

ASA(CW) Memorandum, "Statement of New Environmental Approaches," 25 June 1990.

"Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies," (P&G), U.S. Water Resources Council, 1983.

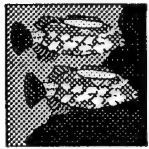
CECW-L/E/P Memorandum, "Principles and Objectives of Project Document Review," 30 November 1993.

"U.S. Army Environmental Strategy into the 21st Century," November 1992.

Also see "Annual Program and Budget Request for Civil Works Activities," EC 11-2-XXX, for current fiscal year.

Corps home pages for policy and planning guidance: <http://www.usace.army.mil>

Devin River Restoration Project--Hypothetical Example



By scanning the last column in Worksheet 3-3 (signifiscore), the interdisciplinary planning team produced a list of the most significant resources associated with the study area for the proposed Devin River Restoration Project. The worksheet provides information and documentation about how the signifiscores were developed. Based on the signifiscores in Worksheet 3-3, in this example, the preliminary list of the most significant environmental resources associated with the study area for the proposed Devin River Restoration Project was:

- Bald Eagle,
- Peregrine Falcon,
- Northern Waterfowl,
- Wandering Warbler,
- Greenbellied Anadromous Fish,
- Hansen Shiner, and
- Osprey.

After a review of current Corps policy, planning, and budgetary guidance, the interdisciplinary planning team determined that although the Peregrine Falcon and Wandering Warbler were determined significant, no clear relationship existed between this significant environmental resource and Corps missions and areas of expertise. Unlike the Bald Eagle and Osprey, the Peregrine Falcon does not consume large quantities of fish (instead its preferred prey are smaller birds); therefore, the Peregrine Falcon is less reliant on the riverine ecosystem. The Wandering Warbler is one of the species receiving attention through a Federal-nonprofit organization partnership to protect nongame migratory bird species. Consequently, the interdisciplinary planning team decided not to include the Peregrine Falcon and Wandering Warbler in the significance statement to be prepared in the communication phase. Because the USFWS as well as the local chapter of the Audubon Society are addressing the restoration needs of the Wandering Warbler, the interdisciplinary planning team decided it would coordinate with these other agencies and organizations during formulation of alternative project plans.

The final list of the most significant environmental resources associated with the study area for the proposed Devin River Restoration Project was:

- Bald Eagle,
- Northern Waterfowl,
- Greenbellied Anadromous Fish,
- Hansen Shiner, and
- Osprey.

5. COMMUNICATION PHASE

The purpose of the communication phase is to develop narrative statements describing the determinations of significance that will be included in planning reports. These narrative statements are developed only for the most significant resources associated with a proposed restoration project.

Chapters 3 through 5 of *Significance in Environmental Project Planning: Resource Document* (see Addendum to this report) provide example significance statements that describe determinations of institutional, public, and technical significance for different types of environmental resources and restoration projects. These examples are intended to assist Corps planners in developing significance statements for actual restoration projects.

Application of the communication phase for each type of study is described below:



Reconnaissance Studies. A significance statement for a reconnaissance study focuses on those resources that can assist in establishing the Federal interest in a proposed restoration project. Typically, the significance statement can be summarized in one or two paragraphs. This significance statement should provide a rationale for proceeding to a feasibility study, based on a description of the Federal interest in a proposed restoration project.



Feasibility Studies. For feasibility studies, the significance statement can generally be written in one page or less. For complex projects, or those with a larger scope, the significance statement should be limited to a maximum of two to three pages. These narrative statements are developed only for the most significant resources associated with a proposed project, as determined in the evaluation phase. Typically, the most significant resources are those resources that are significant from a national or regional perspective. The narrative significance statements communicate important information to decision makers to evaluate individual project plans, support project justification, and assist in allocating resources among different projects.

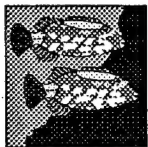
Step 10--Develop Significance Statements



Summarize information in the worksheet (i.e., information describing environmental resources associated with the study area, and the institutional, public, and technical significance of the resources) to develop a narrative statement for the planning report. Known as significance statements, these statements are important because they provide much needed information to decision makers to support (or reject) project justification. Significance statements may also be useful in discussions with other study participants.

Conclusions from the optional Steps 6, 7, and 8 (i.e., relative importance rankings, levels of significance, and the signifiscores developed for prioritizing resource significance) can be used to assist in developing a narrative significance statement. However, the values from Steps 6, 7, and 8 typically should not be described, or otherwise accounted for, in a planning report. The signifiscores are intended to assist the interdisciplinary planning team through the decision making process to prioritize resource significance for environmental resources associated with the study area for a proposed restoration project. The signifiscores are not intended for use as nationally comparable rankings. Additionally, the signifiscores should not be used as absolute measures of significance, but instead as a method to determine those resources with the greatest relative significance. The significance statement in a planning report should present the determinations of relative significance in narrative form for use by decision makers in supporting (or rejecting) project justification.

Devin River Restoration Project--Hypothetical Example



Based on the hypothetical Devin River Restoration Project, the example significance statement provided below illustrates how information from the worksheet and associated documentation was used by the interdisciplinary planning team to develop a narrative statement describing the institutional, public and technical significance of environmental resources associated with the study area for a particular project.

Example Significance Statement for Devin River Restoration Project

The Devin River watershed is located in State X. Devin River is recognized as an important migratory route for the Greenbellied Anadromous Fish. As an anadromous fish species, it is considered significant under the Federal Anadromous Fish Conservation Act of 1965. Devin River has two primary upper tributaries, which are Little Deep Fork Creek and Hansen Run. Both Little Deep Fork Creek and Hansen Run are recognized by the State Wildlife Agency as important spawning habitat for the Greenbellied Anadromous Fish. As a result of the Corps channelization project between river miles 10 and 20 of the Devin River, this species has experienced a regional population decline. The Anadromous Fish Conservation Act of 1965 provides for the conservation, development, and enhancement within the United States of anadromous fishery resources, particularly those subject to water resources developments. Therefore, the Act provides institutional recognition of the significance of this anadromous fish species and its migratory route up the Devin River to its spawning habitat in Little Deep Fork Creek and Hansen Run. Additionally, the American Fisheries Society has recognized the Greenbellied Anadromous Fish as a native freshwater fish species of special concern. The Terratin Tribe also recognizes the importance of the Greenbellied Anadromous Fish because of its prominence in tribal lore and has actively supported the proposed restoration project.

The lower portion of the Devin River watershed was once the site of three bald eagle nests used by three breeding pairs of Bald Eagles. Currently, one bald eagle nest exists near the west bank of Devin River around river mile 20. Located at the upper end of the river segment affected by the channelization project, it is still used by a breeding pair of Bald Eagles. The Bald Eagle relies heavily on foraging fish from the Devin River along with the Osprey. Three Osprey nests exist in the Devin River watershed, with one Osprey nest remaining in the river segment affected by the channelization project and two other nests upstream. The Federal listing of the Bald Eagle as a threatened species (recently down listed from endangered) demonstrates that the Bald Eagle is recognized by Federal law as institutionally significant. The proposed Devin River Restoration Project is expected to support USFWS plans for recovery of the Bald Eagle population in the Devin River watershed by restoring a more self-sustaining, healthy aquatic ecosystem in Devin River. The proposed project should also contribute to the continued recovery of Osprey populations in State X by providing a less degraded, more natural aquatic ecosystem for Osprey nesting and foraging areas in the Devin River watershed.

The Northern Waterfowl is a migratory waterfowl species that uses the streambank of Devin River as a resting area during migration. The Devin River watershed is located within a U.S. Joint Venture established under the North American Waterfowl Management Plan (NAWMP). Joint Ventures are comprised of a coalition of Federal, state, and private agencies and individuals that cooperate and pool resources to achieve the objectives of the NAWMP. Because the Devin River watershed is part of an approved Joint Venture under NAWMP, it is recognized as institutionally significant from a national/international perspective. The Devin River Restoration Project is expected to support the NAWMP's goals for conservation and management of waterfowl species and habitat by protecting Northern Waterfowl populations through restoration and maintenance of riparian habitat for the Devin River.

The Hansen Shiner is a small native fish species that historically was endemic to three river systems in the eastern region of State X. It now is found primarily in the Hansen Run tributary of the Devin River. The Hansen Shiner was extirpated between river miles 10 and 20 after the channelization project and has experienced population declines between river miles 20 and 40 after the channelization project. In 1989, the Hansen Shiner was listed as a threatened native freshwater fish species by the American Fisheries Society. This recognition supports the institutional significance of the Hansen Shiner. Because it is an endemic species that is experiencing population declines, the Hansen Shiner in the Devin River watershed can also be considered technically significant. The State Wildlife Agency has expressed interest in the potential for the proposed Devin River Restoration Project to expand the population of Hansen Shiner in parts of its former range within the Devin River watershed by restoration of in-stream habitat in Devin River.

Exhibit 5-1 presents a checklist to assist the interdisciplinary planning team in evaluating whether they have prepared an effective significance statement. An effective significance statement is one that convincingly answers the question: Why are the resources associated with the proposed project significant enough for this project to receive Federal funding? The significance statement should help justify Federal involvement in a restoration project by bringing value information to the "is it worth it" question.

Exhibit 5-1. Checklist to Evaluate Effectiveness of Significance Statements

Is this a "winning" significance statement?



Does it convincingly answer the question: Why are the resources associated with the proposed project significant enough for this project to receive Federal funding?

Does it focus on the most significant resources associated with the study area for the proposed project?

Does it clearly establish a Federal interest in the proposed project?

Does it demonstrate significance from a national or regional perspective?

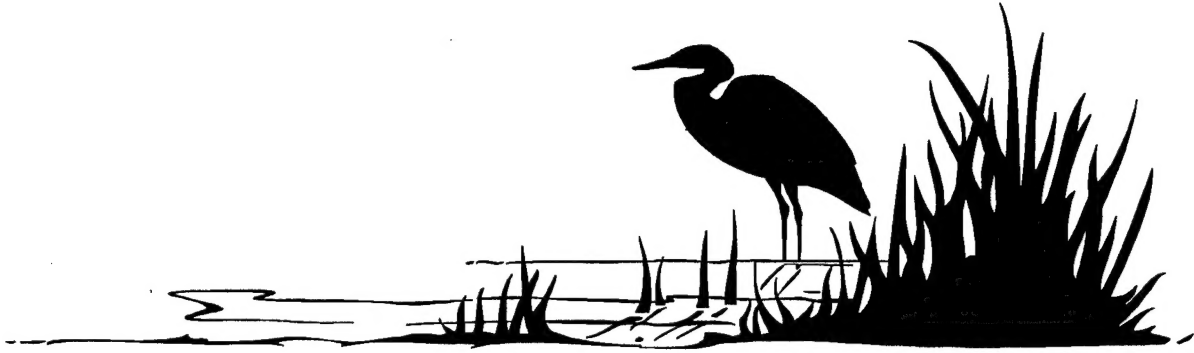
Does it support national or regional significance with other information about significance at the state and local levels?

Does it adequately address statements for the three different types of significance (institutional, public, and technical) and clearly explain the sources of significance for each type?

Does it clearly establish a link between significance and prioritization of environmental resources and Corps policy and planning considerations?

Does it clearly explain the components of the proposed project that are relevant to the significant environmental resources?

Is it concise and well organized?



NOTE TO THE READER: The Addendum to this report, which is included with the bound, printed version, was originally published as IWR Report 96-R-7, *Significance in Environmental Project Planning: Resource Document*. Report 96-R-7 is available as a separate electronic document on the IWR website.